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Jan 1984
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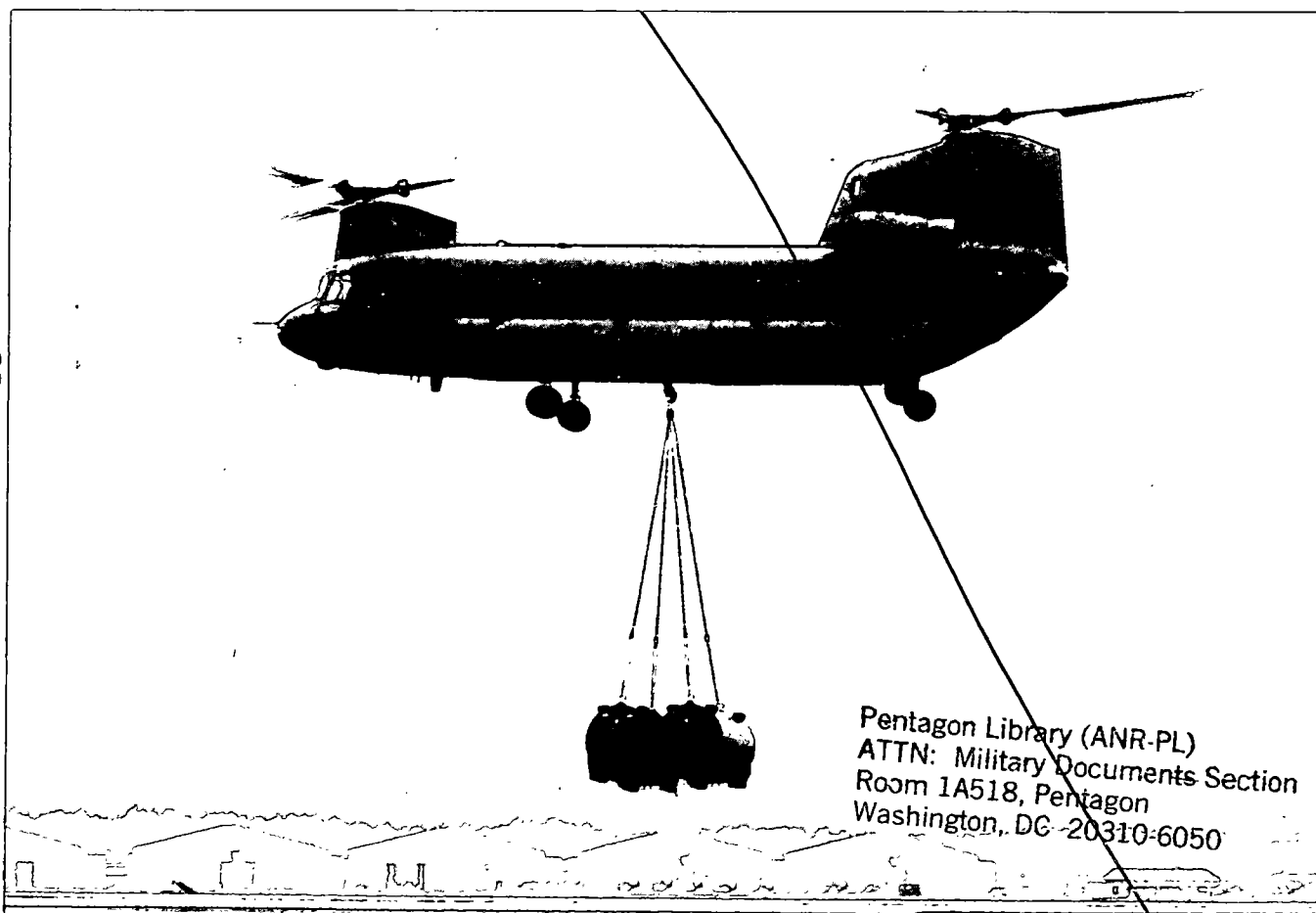
FM 55-250

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FIELD MANUAL

AIR TRANSPORT PROCEDURES

TRANSPORT OF NIKE-HERCULES WARHEAD SECTION IN SHIPPING AND STORAGE CONTAINER, M409, BY US ARMY HELICOPTERS



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HEADQUARTERS, DEPARTMENT OF THE ARMY

JANUARY 1984



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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 29 AUGUST 1988

Immediate Action INTERIM CHANGE

*FM 55-250
INTERIM CHANGE
NO. I03
Expires 29 August 1989

Air Transport Procedures

Transport of Nike-Hercules Warhead Section
In Shipping and Storage Container, M409,
By US Army Helicopters

Justification: This interim change establishes new ratcheting procedures for web strap tiedowns used to secure nuclear weapons and components on board US Army helicopters. This guidance is safety related and is required to prevent the inadvertant loosening of tiedown straps during flight.

Expiration: This interim change expires 2 years from date of publication and will be destroyed at that time unless sooner rescinded or superseded by a permanent change.

1. FM 55-250, 1 January 1984, is changed as follows:

Page 2-2. Paragraph 2-2g is superseded as follows:

g. Attach tiedown straps to cargo and to tiedown fittings and rotate the takeup spool until no metal on the spool shows and the strap has made contact with itself. Tension each strap to form at least 1/2 wrap but not more than 1-1/2 wraps on the takeup spool of the tensioning ratchet. Tighten each tiedown, applying equal tension throughout the tiedown arrangement to prevent movement of the cargo. After tensioning is completed, the takeup spool locking latch must be checked to ensure that it is fully seated at both ends of the spool in the matching locking notches. During flight, tiedowns will be checked and tightened as necessary.

Page 2-2. Add the following note after paragraph 2-2g:

Note

The CGU-1/B tiedown device (NSN 1670-00-725-1437) and the web tiedown strap (NSN 5340-01-089-4997) each have a rated strength of 5,000 pounds and may be used to secure items described in this manual. Tiedown strap (NSN 5340-01-204-3009) may also be used to secure the item. The 36-month useful-life limit does not apply to tiedown strap (NSN 5340-01-204-3009), but it will be marked with the unpacking date (month and year) when used.

*This interim change supersedes interim change I02, 1 December 1986.

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2. Post this change per DA Pam 310-13.

3. File this interim change in front of the publication.

MTT-TRA

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

WILLIAM J. MEEHAN II
Brigadier General, United States Army
The Adjutant General

DISTRIBUTION:

ACTIVE ARMY, USAR, ARNG: To be distributed in accordance
with DA Form 12-11-E, requirements for Air Transport Procedures-
NIKE HERCULES Warhead in M409 and DA Form 12-35, Unit Maintenance
requirements for Section III, Weapons System Literature, NIKE HERCULES.

Copy 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 1 DECEMBER 1986

Immediate Action
INTERIM CHANGE

FM 55-250
INTERIM CHANGE
NO. IO2
Expires 1 December 1988

Air Transport Procedures

Transport of Nike-Hercules Warhead Section
In Shipping and Storage Container, M409,
By US Army Helicopters

*Ported
15 Dec 86*

Justification: This interim change authorizes a new tiedown strap to be used to secure nuclear weapons and components aboard US Army helicopters. This change also provides procedures for the proper application of tiedown straps when securing nuclear weapons and components on board US Army helicopters. This guidance is safety related and is required to prevent the inadvertent loosening of the tiedown straps during flight.

Expiration. This interim change expires 2 years from date of publication and will be destroyed at that time unless sooner rescinded or superseded by a permanent change.

1. FM 55-250, 1 Jan 1984, is changed as follows:

Page 2-2. Paragraph 2-2g is superseded as follows:

g. When tiedown straps have been attached to cargo and to tiedown fittings, tension each tiedown strap to form at least one and one-half turns on the take-up spool of the tensioning ratchet. The one and one-half turns must be taken after webbing to webbing contact. Continue to tighten each tiedown, applying approximately equal tension to all tiedowns to prevent movement of the cargo. Check tiedowns during flight and tighten as necessary.

Page 2-2. Add the following note after paragraph 2-2g:

Note

The CGU-1/B tiedown device (NSN 1670-00-725-1437) and the web tiedown strap (NSN 5340-01-089-4997) each have a rated strength of 5,000 pounds and may be used to secure items described in this manual. Tiedown strap (NSN 5340-01-204-3009) may also be used to secure the items. The 36-month useful-life limit does not apply to tiedown strap (NSN 5340-01-204-3009), but it will be marked with the unpacking date (month and year) when used.

2. Post this change per DA Pam 310-13.

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FM 55-250

3. File this interim change in front of the publication.

MTT-TRA

By Order of the Secretary of the Army:

JOHN A. WICKHAM, Jr.
General, United States Army
Chief of Staff

Official:

R. L. DILWORTH
Brigadier General, United States Army
The Adjutant General

Distribution:

ACTIVE ARMY, ARNG, USAR: To be distributed in accordance with DA Form 12-11A requirements for Air Transport Procedures - NIKE HERCULES Warhead and DA Form 12-35 Organizational Maintenance requirements for Section III Authorized Weapons System Literature, NIKE HERCULES

Headquarters
Department of the Army
Washington, DC
13 November 1984

Immediate Action INTERIM CHANGE

FM 55-250
Interim Change
No. I01
Expires 13 November 1986

Air Transport Procedures

Transport of Nike-Hercules Warhead Section
In Shipping and Storage Container, M409,
By US Army Helicopters

Justification. This interim change provides procedures for the application of tiedown straps used to secure nuclear weapons and components on board US Army helicopters. This guidance is safety-related and is required to prevent the inadvertent loosening of the tiedown straps during flight.

Expiration. This interim change expires 2 years from date of publication and will be destroyed at that time unless sooner rescinded or superseded by a permanent change.

1. FM 55-250, 1 January 1984, is change as follows:

Page 2-2. Paragraph 2-2g is superseded as follows:

g. When attaching tiedown straps to cargo and to tiedown fittings, tension each tiedown strap to form at least one and one-half turns on the take-up spool of the tensioning ratchet. The one and one-half turns must be taken after webbing to webbing contact. Continue to tighten each tiedown, applying approximately equal tension throughout the tiedown arrangement to prevent movement of the cargo. Check tiedown during flight and tighten as necessary.

2. Post this change per DA Pam 310-13.
3. File this interim change in front of the publication.

(MTT-TRC)

13 November 1984

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

Distribution:

Active Army, ARNG, USAR: To be distributed in accordance with DA Form 12-31, Operator's Maintenance requirements for CH-47B/C; CH-47D; CH-54A; CH-54B; UH-1D/H/V/EH-1H and UH-60A; DA Form 12-34B requirements for TM 55 Series: Transportability Guidance, Air Transport Procedures: Nuclear Warheads and Projectiles and DA Form 12-35, Operator's Maintenance requirements for Section III Weapon System, Nike-Hercules.

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FIELD MANUAL }
No. 55-250 }

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 1 January 1984

AIR TRANSPORT PROCEDURES

TRANSPORT OF NIKE-HERCULES WARHEAD SECTION IN SHIPPING AND STORAGE CONTAINER, M409, BY US ARMY HELICOPTERS

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(Front cover: CH-47 helicopter transport of Nike-Hercules warhead section in shipping and storage containers, M409, with use of sling, helicopter, cargo carrying, external.)



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CHAPTER 1

INTRODUCTION

1-1. Purpose and Scope

a. This manual presents Department of the Army approved procedures for internal and external transport of the Nike-Hercules warhead section in the shipping and storage container, M409 (also referred to as "item"), by US Army helicopters. This manual pertains to the UH-1D/H, UH-60, CH-47, and CH-54 helicopters. Materials and qualified personnel needed to prepare, load, tie down, and unload, or to rig and derig, the item are prescribed herein. Where appropriate, metric equivalents are given in parentheses following the dimensions or other measurements. References are shown in appendix A.

b. The internal transport procedures in this manual apply when the warhead section is transported by CH-47 helicopter or by universal military pod attached to the CH-54 helicopter. The described internal load of two warhead sections for the CH-47 and the CH-54 pod is a maximum load. The external transport procedures apply when one warhead section is transported by UH-1D/H helicopter having an allowable cargo load capacity equal to or greater than the weight of the load, or when one or two warhead sections are transported by UH-60, CH-47, or CH-54 helicopter. Additional internal cargo, including different types of nuclear weapons and/or personnel within allowable load limits and restrictions prescribed by AR 50-5 and pertinent safety regulations (app), may be transported.

c. Times given to prepare, load, tie down, and unload, or to rig and derig, the loads described in this manual may vary, depending upon existing conditions.

1-2. Reporting of Publication Improvements

Users of this publication are encouraged to recommend changes and submit comments for its improvement. Comments should be prepared on DA Form 2028. (Recommended Changes to Publications and Blank Forms) and forwarded to Commander, Military Traffic Management Command Transportation Engineering Agency, ATTN: MTT-TRC, PO Box 6267, Newport News, VA 23606 (electrically transmitted message should be addressed to: CDR MTMCTEA FT EUSTIS VA//MTT-CRC//).

1-3. Definitions of Warnings, Cautions, and Notes

When used in this manual, warnings, cautions, and notes emphasize important or critical guidance. They are used for the following conditions:

a. *Warning.* Instructions that, if not followed, could result in injury to or death of personnel.

b. *Caution.* Instructions that, if not strictly observed, could result in damage to or destruction of equipment.

c. *Note.* An operating procedure that must be emphasized.



CHAPTER 2

GENERAL SAFETY AND SECURITY MATTERS

WARNING

The Nike-Hercules warhead section will not be jettisoned under any circumstances.

2-1. Warnings

The following warnings will be observed by personnel performing operations, procedures, and practices that are included or implied in this manual. Disregard for these warnings could result in personal injury or loss of life.

a. Prior to each nuclear cargo mission, the pilot in command will be familiar with provisions of AR 50-5, AR 50-5-1, and AR 95-27, and insure compliance therewith. In addition, the pilot will become familiar with the security, safety, and technical peculiarities of the cargo that may affect air transport. Flight plans will include provisions for avoiding built-up and heavily populated areas. When the warhead section in the universal military pod is transported by CH-54 helicopter, the pod must be secured to the helicopter to preclude jettisoning the pod deliberately or inadvertently. Procedures for securing the pod to preclude jettisoning are prescribed in TM 55-1520-217-10/1 and TM 55-1520-217-10/2.

b. Ordnance support channels must be consulted for determination of compatibility of any other nuclear weapons or other cargo (as authorized by chapter 4, AR 50-5; chapter 1, AR 55-203; and FM 100-50) for transport with the Nike-Hercules Warhead section. Information on compatibility is contained in TM 39-45-51C and TM 38-250, which are distributed to major headquarters and to direct support and general support levels. Restrictions listed in TM 39-20-7 will not be exceeded when additional types of nuclear weapons are transported along with the warhead section. Procedures for units with a nuclear mission operating under combat conditions are given in FM 100-50.

c. Emergency destruction procedures for the warhead section are contained in TM 39-50-8. Normally, emergency-destruct materials and nuclear weapons will not be carried on the same helicopters. In the isolated case, where operational necessity limits the availability of escort aircraft, the theater

commander may authorize emergency-destruct materials (including blasting caps or precapped charge lines) to be transported in the load-carrying helicopter. Such materials will be in packagings authorized for transportation, isolated from weapons as far as possible, and tied down so as to prevent movement. Only the number of destruct charges and blasting caps or precapped charge lines necessary to destroy the warhead section will be carried aboard. Blasting caps or precapped charge lines in their container (recommend use of M2- or M19-series ammunition boxes) will be tied down separately and surrounded by a restrained sandbag barrier. Transport of electric blasting caps or precapped charge lines in helicopters is governed by TM 9-1300-206.

d. The warhead section will be loaded and tied down as prescribed in this manual except that it may be repositioned for helicopter operational reasons, or when loading additional nuclear weapons or other cargo and/or mission personnel. If a location other than that shown in the respective tie-down diagram is used, the pilot in command must insure that—

(1) The number and load capacity of the tie-down devices are as prescribed in this manual.

(2) Tiedown devices restraining the item are secured to tiedown fittings in the same location relative to the item as those fittings used in the pertinent tiedown diagram. Required restraint will be provided when the depicted tiedown pattern is maintained.

2-2. Operational Precautions

The following operational precautions will be observed during loading, rigging, tiedown, transport, and unloading of the warhead section.

a. Web strap tiedown assemblies used to secure or sling-transport the items described in this manual are limited to a maximum time of usage (useful life) of 36 months. The time of usage will commence at the time the tiedowns and slings are unpackaged for use by the using organization. At that time, the current date (month and year) will be marked, with stencil ink TT-I-1795 (any contrasting color), on the web strap tiedown assemblies in at least 1/2-inch-high letters, near the hook end of the strap.

b. Prior to each usage, tiedowns and slings will be inspected for burns, tears, punctures, or cuts. Also, metal items will be inspected for improper operation, cracks, or distortion. If any of these conditions exist, or if the time of usage exceeds 36 months, the tiedowns or slings must be replaced. No strength testing of tiedowns or slings will be conducted. Additional storage, inspection, and maintenance criteria for tiedowns and slings are prescribed by 55-450-series technical manuals (app).

c. Serviceable web-strap tiedown assemblies in use more than 36 months may be used to secure nuclear weapon trainers, training devices, and other non-nuclear cargo (para 4-3h, AR 50-5). However, when the M409 container or other nuclear weapon or component is transported in the helicopter or pod, all tiedowns, including those used to secure weapon trainers, training devices, and other non-nuclear cargo, must meet the 36-month useful-life criterion.

d. The tiedown assemblies, safety restraining device, and slings must be padded and taped at points of contact with the item to prevent abrasion of webbing.

e. Movement of the warhead section container must be controlled to prevent injury to personnel or damage to the item, helicopter, or pod. During winching of the container, safety restraining device (web strapping or equivalent) will be used. The strapping must be attached to the item and the free end must be passed through a strap fastener (NSN 1670-00-360-0340 or equivalent), which is attached to a tiedown fitting in the forward part of the helicopter pod. The free end of the strapping must then be *manned outside, to the rear, and to one side of the helicopter or pod*. When the container is winched, slack must be taken out of the strapping so that the container will be restrained if the winch or cable fails. Safety restraining devices identified in FM 55-9 may be used.

f. To prevent movement of parking shoring during loading operations, a tiedown chain must be

secured across the cargo compartment forward of the cargo tiedown location and the shoring must be butted against the chain.

g. ~~When tiedown devices are attached to the cargo and to the tiedown fittings, approximately equal tension must be maintained throughout tiedown arrangements. The tiedowns must be tightened to prevent movement of cargo, and loose ends of straps must be secured. Tiedowns must be checked during flight and tightened as necessary.~~ *2005 02*

h. Security and safety measures relative to security personnel, fire, or emergency destruction procedures, as established by pertinent publications (app), will be observed during all phases of air transport. All operations described herein will be in strict compliance with AR 50-105, TM 9-1300-206, TM 9-1100-250-12, and FM 100-50.

i. Passenger seats must be available for the minimum essential security personnel (officer courier and guard).

j. The high noise level of helicopter engines and auxiliary power unit can cause permanent damage to hearing. All personnel working near the helicopters will wear hearing protectors; other will avoid entering engine-noise danger area. In addition, external-cargo hookup personnel will wear goggles and protective headgear (hard hat, steel helmet, or flight helmet) and will use a static-electricity discharge probe.

k. Helicopters will be searched and inspected for unauthorized personnel and equipment and any possible sabotage. Entry controls will be established.

WARNING

During winching operations, the area behind the container must be cleared of personnel, and only necessary personnel will be in the cargo compartment. Personnel must not step across the taut winch cable.

CHAPTER 3

AIR TRANSPORTABILITY AND HANDLING DATA

3-1. General

a. The container, M409, with Nike-Hercules warhead section will normally be air-transported as an internal load. However, under emergency conditions, the item can also be transported as an external load (para 4-2). The determination that external transport is justifiable will be approved by the theater commander.

b. Dimensions, volume, and approximate weight of the container, M409 (fig 3-1), with the Nike-Hercules warhead section are as follows:

Length	Width	Height	Volume	Weight *
99.0 in. (2.51 m)	54.0 in. (1.37 m)	62.0 in. (1.57 m)	192 cu ft (5.43 cu m)	3,068 lb (1,392 kg)

* Weight of the empty container, M409, is approximately 1,945 pounds (882 kg).



Figure 3-1. Shipping and storage container, M409, for Nike-Hercules warhead section. Container is positioned for loading into CH-47 helicopter.

c. The item is too large for internal transport by UH-1D/H and UH-60 helicopters.

d. The container may be faced either forward or aft for internal air transport. (Tiedown diagrams in this manual show the container facing forward.) Container center of balance is approximately 51 inches (1.30 m) from the aft end (end of skids); it is marked on the container.

e. The container must be inspected for damage other than minor scratches and abrasions. If the container is damaged to such an extent that its

contents or functions might be affected, the support unit must be notified and a report must be submitted in accordance with chapter 5, AR 50-5.

f. The latches securing the container cover must be tight.

g. If wheeled or roller conveyor sections are not available, the container may be winched on its skids over the shoring.

h. Plywood may be used as parking and rolling shoring in place of all or part of the 2- by 12-inch lumber shoring, but not as blocking shoring, as prescribed in paragraph 4-1. The plywood shoring must be at least ½-inch thick and 16 inches wide under each conveyor section to provide required distribution of container weight on helicopter or pod ramp and floor.

i. Plywood, 4- by 8-foot by ½-inch, may be used between container and conveyors, but is not required.

j. When web strap tiedown assemblies are attached to the rear of the container, M409, padding must be used to prevent chafing between the tiedown assemblies and the container skid. Two-inch pressure sensitive tape (NSN 7510-00-663-0196) and cushioning material, cellulosic, longitudinally compressed (NSN 8135-00-808-6446), or suitable substitutes, will be used throughout the tiedown arrangement where abrasion may occur.

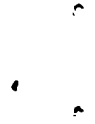
k. If tiedown points on the container, M409, are too large for direct attachment of the fixed snap hook on the CGU-1/B tiedown device, a shackle or clevis assembly must be used to make the attachment. The clevis assembly (NSN 1670-00-360-0304), or equivalent, attached to the oversize tiedown point is suitable for the identified purpose.

l. The helicopter center of balance must be computed for each load, to include number and location of security personnel.

3-2. Time Required

a. Four persons can prepare, load, and tie down each container in the helicopter or pod in approximately 30 minutes.

b. Four persons can unload each container from the helicopter or pod in approximately 15 minutes.



CHAPTER 4

TRANSPORT BY HELICOPTER

4-1. Internal Transport

a. Materials and Procedures for Transporting One Nike-Hercules Warhead Section, in Container, M409, by CH-47 Helicopter.

(1) Materials.

(a) Parking shoring: two pieces, 2- by 12-inch by 10-foot.

(b) Rolling shoring: two pieces, 2- by 12-inch by 12-foot; four pieces, 2- by 12-inch by 8-foot.

(c) Bridge shoring: one sheet of plywood, 4- by 8-foot by ½-inch (shoring may be used between container skids and conveyors but is not required).

(d) Blocking shoring: approximately 22 pieces, 2- by 12- by 20-inch.

(e) Wheeled or roller conveyor: two sections, 8-foot (NSN 3910-00-764-0229), or equivalent.

(f) Restraint straps: two CGU-1/B tiedown devices, or equivalent.

(g) Chain (type used with C-2 or MB-1 tie-down device): two, 10,000-pound capacity, or equivalent.

(h) Clevis assembly, suspension, air delivery (NSN 1670-00-360-0304), or equivalent; as required.

(i) Truck, forklift, or crane: one, load-tested, 6,000-pound minimum capacity.

(2) Loading.

(a) Position rolling shoring and two helicopter auxiliary loading ramps to align with skids of container. (Use parking shoring as rolling shoring.)

(b) Position shoring and conveyors, rollers down, as shown in figures 4-1 and 4-2. Use 8-foot shoring on ramp and also as first extension into the

cargo compartment. Place two 20-inch blocks between conveyors to maintain alignment while item is being towed into helicopter.

(c) Position container (cover end towards helicopter) on the conveyors (fig 3-1), by using a forklift or crane.

(d) Connect two CGU-1/B tiedown devices, then place them around the forward (cover) end of container and aft end of conveyors, as shown in figure 4-3, to prevent the container from being pulled off the conveyors during loading.

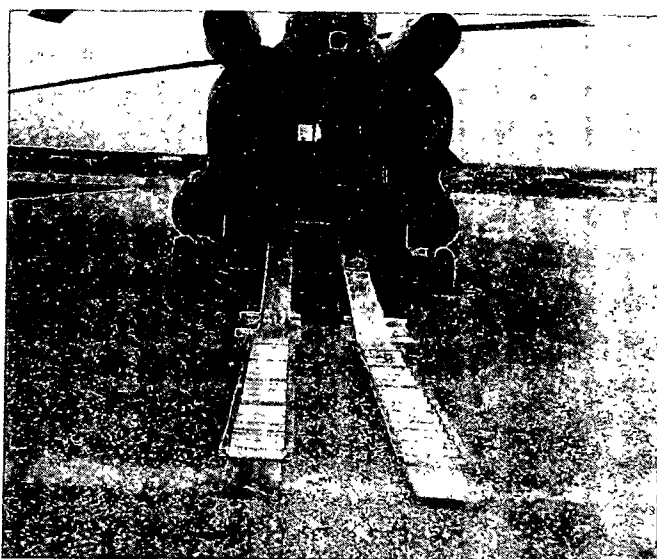


Figure 4-1. Rolling, blocking, and parking shoring and conveyors positioned for loading Nike-Hercules warhead section shipping and storage container, M409, into CH-47 helicopter.

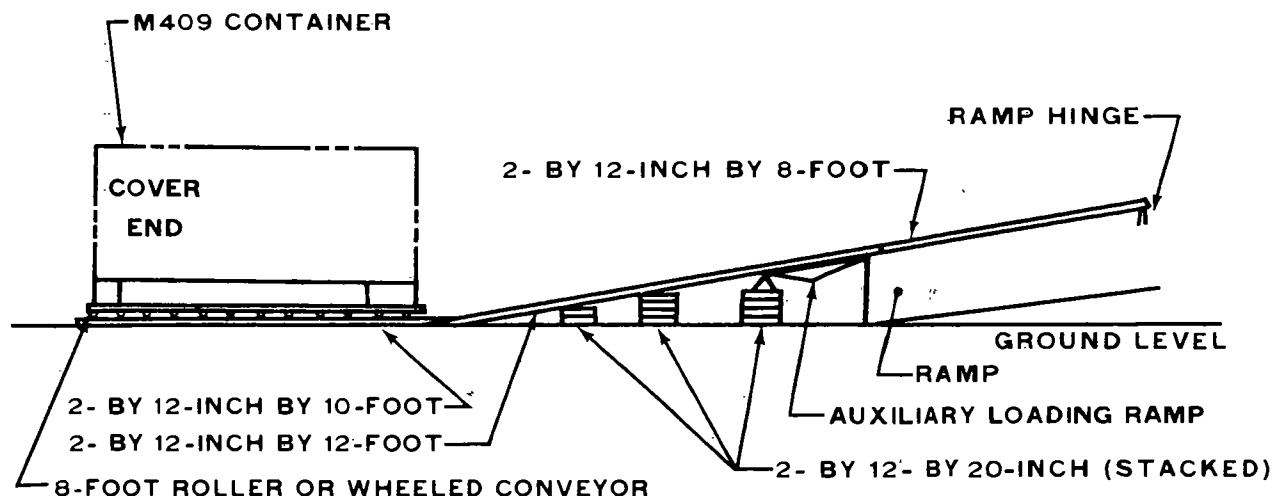


Figure 4-2. Side view schematic of rolling and blocking shoring positioned for loading Nike-Hercules warhead section shipping and storage container, M409, into CH-47 helicopter.

(e) Form a bridle by passing the chain through towing eyes on the front end of the container. Attach helicopter-winch cable hook to the bridle, then safety tie the hook to prevent accidental release. (Safety tying the hook is equipped with a serviceable safety latch.)

(f) Place a wooden block at ramp hinge, beneath towing cable, to protect helicopter floor.

(g) Position guides to adjust shoring, then observe clearances and winching cable, and signal winch operator as necessary.

(h) Winch the container onto helicopter ramp, then reposition ground-level shoring into the helicopter at container tiedown location.

(i) Winch the container to its tiedown location and apply fore-and-aft restraints.

(j) Release tension on winch cable. (The bridle and cable may remain attached to the container for use in unloading.)

(k) Tie down the container (on the conveyors and shoring) in accordance with figure 4-4 and

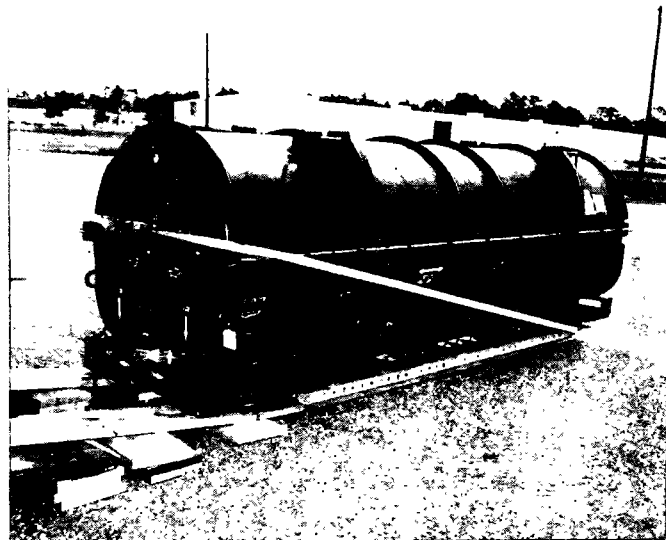


Figure 4-3. Placement of CGU-1/B tiedown devices to restrain container during loading. Shown is the M483 container for Pershing warhead section.

Table 4-1. Tiedown Data for One Nike-Hercules Warhead Section Shipping and Storage Container, M409, in CH-47 Helicopter

Tiedown fitting		Tiedown device *		Attach to item
Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A7	10	CGU-1/B	5	Left front stacking bracket
E7	10	CGU-1/B	5	Right front stacking bracket
A9	5	CGU-1/B	5	Left rear inner tiedown point
E9	5	CGU-1/B	5	Right rear inner tiedown point
A12	5	CGU-1/B	5	Left front inner tiedown point
E12	5	CGU-1/B	5	Right front inner tiedown point
A14	5	CGU-1/B	5	Left rear stacking bracket
E14	5	CGU-1/B	5	Right rear stacking bracket
B14 **	5	CGU-1/B	5	Left rear tiedown point
D14 **	5	CGU-1/B	5	Right rear tiedown point

* The strap, web, tiedown (NSN 5340-01-089-4997), with a rated strength of 5,000 pounds, may be used in place of the CGU-1/B tiedown device (NSN 1670-00-725-1437).

** Padding should be used as required to prevent chafing between the tiedown assemblies and the container skids.

table 4-1. If container tiedown provisions are too large for direct attachment to the snap hook on tiedown device, use clevis assembly to make the attachment.

(l) Reposition materials required during unloading, then tie them down as directed by the pilot in command.

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The helicopter winch must be used as a safety restraint when the container is manhandled from the helicopter. Also, care must be exercised when the container passes over the ramp hinge.

b. Materials and Procedures for Transporting Two Nike-Hercules Warhead Sections, in Containers, M409, by CH-47 Helicopter.

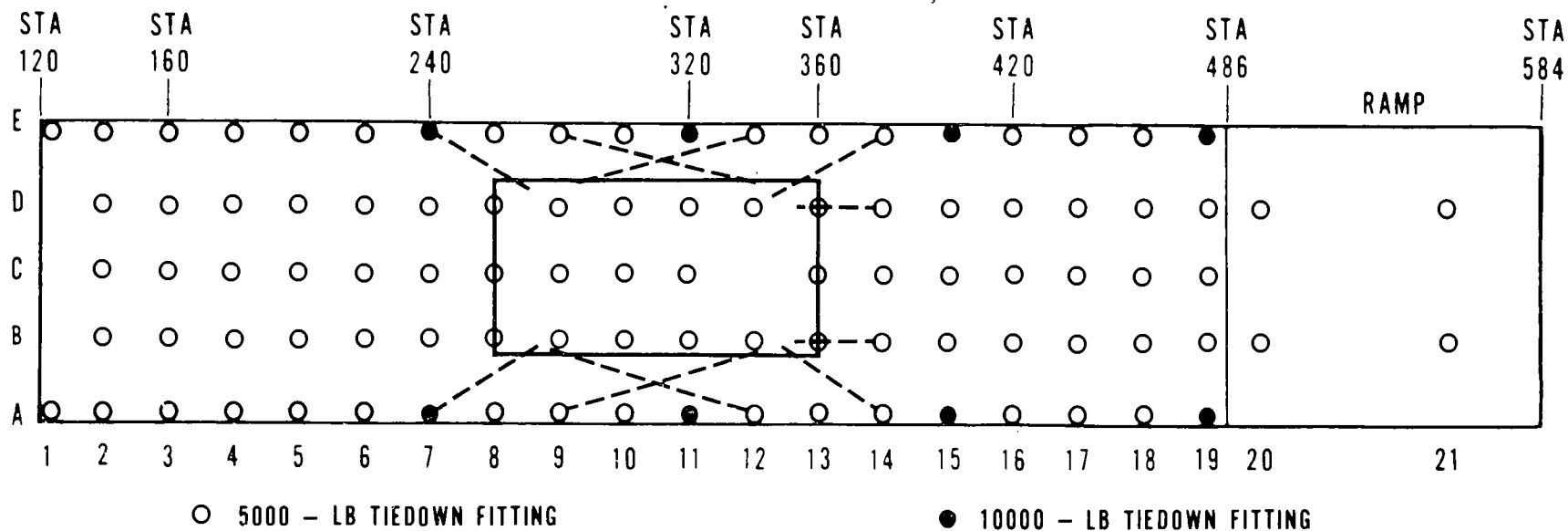
(1) Materials.

(a) Parking shoring: four pieces, 2- by 12-inch by 10-foot; two pieces, 2- by 12-inch by 5-foot.

(b) Rolling shoring: two pieces, 2- by 12-inch by 12-foot; two pieces, 2- by 12-inch by 8-foot.

(c) Bridge shoring: two sheets of plywood, 4- by 8-foot by ½-inch (shoring may be used between container skids and conveyors but is not required).

(d) Blocking shoring: approximately 24 pieces, 2- by 12- by 20-inch.



NOTE: UTILITY HATCH DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 320 AND 360

DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
		REFERENCE POINT	STATION		
CONTAINER, M409, WITH NIKE-HERCULES	COVER END	FORWARD EDGE	260	311	3068
WARHEAD SECTION	AFT	OF CONTAINER			

Figure 4-4. Tiedown diagram for one Nike-Hercules warhead section shipping and storage container, M409, in CH-47 helicopter.

(e) Wheeled or roller conveyor: four sections, 8-foot (NSN 3910-00-764-0229) or equivalent.

(f) Restraint straps: four CGU-1/B tiedown devices, or equivalent.

(g) Chain (type used with C-2 or MB-1 tiedown device): two, 10,000-pound capacity, or equivalent.

(h) Clevis assembly, suspension, air delivery (NSN 1670-00-360-0304), or equivalent: as required.

(i) Truck, forklift, or crane: one, load-tested, 6,000-pound minimum capacity.

(2) Loading.

(a) Position rolling shoring and two helicopter auxiliary loading ramps to align with skids of container. (Use parking shoring as rolling shoring.)

(b) Position shoring and conveyers, rollers down, as shown in figures 4-1 and 4-2. Use 8-foot pieces on ramp and 5-foot pieces as first extension into the cargo compartment. Use two 10-foot pieces in cargo compartment, aligned with 5-foot pieces. Place two 20-inch blocks between each set of conveyers to maintain alignment while item is being towed into helicopter.

(c) Position container (cover end towards helicopter) on the conveyors (fig 3-1), by using a forklift or crane.

(d) Connect two CGU-1/B tiedown devices, then place them around the forward (cover) end of container and aft end of conveyors, as shown in figure 4-3, to prevent the container from being pulled off the conveyors during loading.

(e) Form a bridle by passing chain through towing eyes on the front end of the container. Attach helicopter-winch cable hook to the bridle, then safety tie the hook to prevent accidental release. Safety tying the hook is not required when the hook is equipped with a serviceable safety latch.

(f) Place a wooden block at ramp hinge, beneath towing cable, to protect helicopter floor.

(g) Position guides to adjust shoring, then observe clearances and winching cable, and signal winch operator as necessary.

(h) Winch the first container onto helicopter ramp, then reposition ground-level shoring into the helicopter at container tiedown location.

(i) Winch the container to its tiedown location fore-and-aft restraints.

(j) Disconnect winch cable hook pass beneath first container, and attach hook to bridle on second container.

(k) Temporarily relocate 10-foot parking shoring from helicopter to ground level, then load second container as prescribed for first container. Position 10-foot shoring at container tiedown position, then winch container to tiedown location.

(l) Release tension on winch cable. (The bridle and cable may remain attached to the aft container for use in unloading.)

(m) Tie down the containers (on the conveyors and shoring) in accordance with figure 4-5 and table 4-2. If container tiedown provisions are too large for direct attachment to the snap hook on tiedown device, use clevis assembly to make the attachment.

(n) Reposition materials required during unloading, then tie them down as directed by the pilot in command.

NOTE

If flight is continued after unloading only one container, the helicopter center of gravity must be recomputed and the remaining container moved if necessary to insure that the helicopter is balanced for flight.

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The helicopter winch must be used as a safety restraint when the containers are manhandled from the helicopter. Also, care must be exercised when the containers pass over the ramp hinge.

c. Materials and Procedures for Transporting One Nike-Hercules Warhead Section, in Container, M 409, by CH-54 Helicopter Universal Military Pod in Flight Configuration.

WARNING

The universal military pod must be secured to the CH-54 helicopter to preclude jettisoning the pod either deliberately or inadvertently.

(1) Materials.

(a) Parking shoring: two pieces, 2- by 12-inch by 12-foot.

(b) Rolling shoring: two pieces, 2- by 12-inch by 12-foot; two pieces 2- by 12-inch by 8-foot.

(c) Bridge shoring: one sheet of plywood, 4- by 8-foot by ½-inch (shoring may be used between container skids and conveyors but is not required).

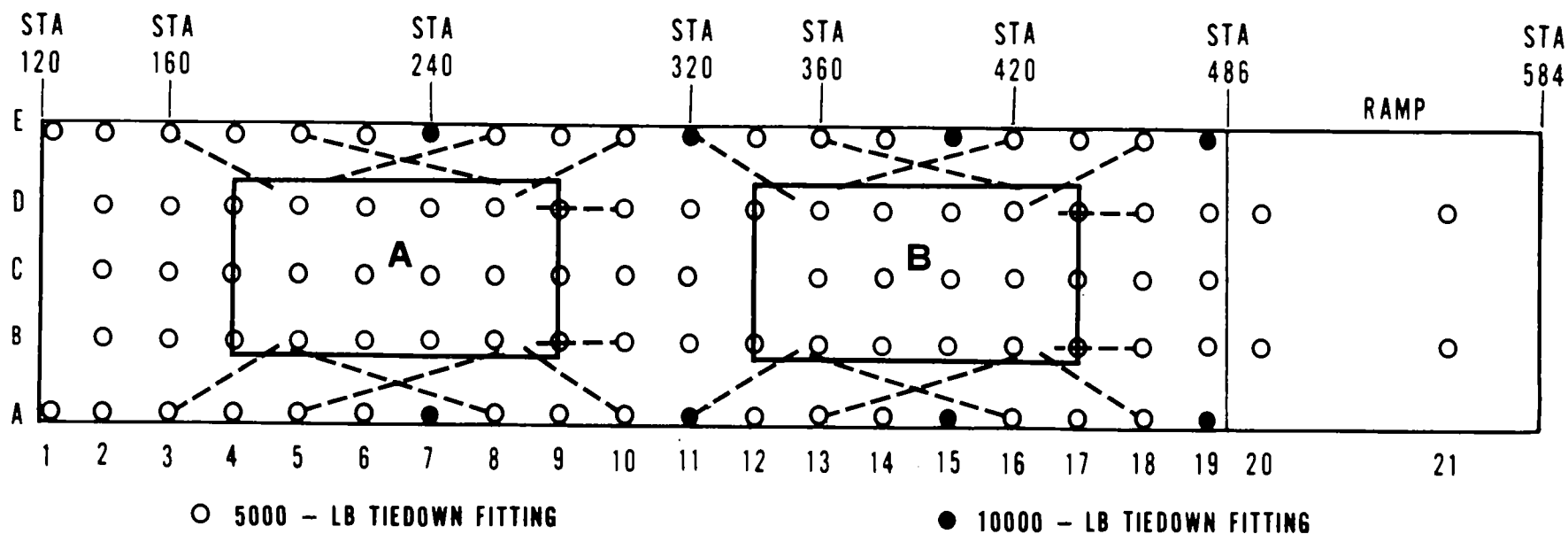
(d) Blocking shoring: approximately 36 pieces, 2- by 12- by 20-inch.

(e) Wheeled or roller conveyor: two sections, 8-foot (NSN 3910-00-764-0229), or equivalent.

(f) Restraint straps: two CGU-1/B tiedown devices, or equivalent.

(g) Chain (type used with C-2 or MB-1 tiedown device): three, 10,000-pound capacity, or equivalent.

(h) Clevis assembly, suspension, air delivery



NOTE: UTILITY HATCH DOOR IS LOCATED IN THE CENTER OF THE FLOOR BETWEEN STATIONS 320 360.

ITEM	DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
			REFERENCE POINT	STATION		
A	CONTAINER, M409, WITH NIKE-HERCULES	COVER END	FORWARD EDGE	180	231	3068
	WARHEAD SECTION	AFT	OF CONTAINER			
B	CONTAINER, M409, WITH NIKE-HERCULES	COVER END	FORWARD EDGE	340	391	3068
	WARHEAD SECTION	AFT	OF CONTAINER			

Figure 4-5. Tiedown diagram for two Nike-Hercules warhead section shipping and storage containers, M409, in CH-47 helicopter.

Table 4-2. Tiedown Data for Two Nike-Hercules Warhead Section Shipping and Storage Container, M409, in CH-47 Helicopter

Item	Tiedown fitting		Tiedown device *		Attach to item
	Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A	A3	5	CGU-1/B	5	Left front stacking bracket
	E3	5	CGU-1/B	5	Right front stacking bracket
	A5	5	CGU-1/B	5	Left rear inner tiedown point
	E5	5	CGU-1/B	5	Right rear inner tiedown point
	A8	5	CGU-1/B	5	Left front inner tiedown point
	E8	5	CGU-1/B	5	Right front inner tiedown point
	A10	5	CGU-1/B	5	Left rear stacking bracket
	E10	5	CGU-1/B	5	Right rear stacking bracket
	B10**	5	CGU-1/B	5	Left rear tiedown point
	D10**	5	CGU-1/B	5	Right rear tiedown point
B	A11	10	CGU-1/B	5	Left front stacking bracket
	E11	10	CGU-1/B	5	Right front stacking bracket
	A13	5	CGU-1/B	5	Left rear inner tiedown point
	E13	5	CGU-1/B	5	Right rear inner tiedown point
	A16	5	CGU-1/B	5	Left front inner tiedown point
	E16	5	CGU-1/B	5	Right front inner tiedown point
	A18	5	CGU-1/B	5	Left rear stacking bracket
	E18	5	CGU-1/B	5	Right rear stacking bracket
	B18**	5	CGU-1/B	5	Left rear tiedown point
	D18**	5	CGU-1/B	5	Right rear tiedown point

*The strap, web, tiedown (NSN 5340-01-089-4997), with a rated strength of 5,000 pounds, may be used in place of the CGU-1/B tiedown device (NSN 1670-00-725-1437).

**Padding should be used to prevent chafing between the tiedown assemblies and the container skids.

(NSN 1670-00-360-0304), or equivalent: as required.

(i) Trucks, forklift, or crane: one, load-tested, 6,000-pound minimum capacity.

(j) Truck: wrecker, medium, 5-ton, 6x6, M816 with winch or suitable substitute.

(k) Snatch block, tackle, single-sheave: two, NSN 3940-00-630-9932 organic to the M816 wrecker, or equivalent block may be used.

(l) Plywood: two pieces, ½-inch by 2- by 2-foot, or equivalent.

(2) Loading.

(a) Position rolling shoring and conveyors, rollers down, as shown in figure 4-6. Use 8-foot pieces as first extension into the pod. Place two 20-inch blocks between conveyors to maintain alignment while item is being towed into pod. (Use parking shoring as rolling shoring.)

(b) Position the container (cover end toward pod) on the conveyors (fig 4-6), by using a forklift or crane.

(c) Connect two CGU-1/B tiedown devices, then place them around the forward (cover) end of container and aft end of conveyors (fig 4-3) to prevent container from being pulled off the conveyors during loading.

(d) Form a bridle by passing chain through towing eyes on front end of the container as shown in figure 4-7.



Figure 4-6. Shipping and storage container, M409, for Nike-Hercules warhead section. Container is positioned for loading into CH-54 helicopter universal military pod.

(e) Attach snatch block, by using tiedown chains, to pod tiedown fittings A1 and D1. Adjust chains to insure that container is winched down the centerline of the pod. Place plywood pieces beneath snatch blocks to protect floor. Winching diagram is shown in figure 4-8.

(f) Pass towing cable through opened snatch blocks, attach cable hook to bridle on container, and

safety tie the hook to prevent accidental release. Safety tying the hook is not required when the hook is equipped with a servicable safety latch. Close and lock blocks. Place wooden blocks beneath towing cable (fig 4-7) to protect pod floor.

(g) Position guides to adjust shoring, then observe clearances and winching cable, and signal truckwinch operator as necessary.

(h) Winch container into the pod by either taking up on the truck winch or backing the truck with winch locked. Reposition rolling shoring for use as parking shoring.

(i) Winch container to its tiedown location and apply fore and aft restraints.



Figure 4-7. Formation of bridle on shipping and storage container, M409, and attachment of truck winch cable hook. Note position of blocks at ramp hinge to protect floor from towing cable.

(j) Tie down the container (on the conveyors and shoring) in accordance with figure 4-9 and table 4-3, then remove towing cable and blocks. If the container tiedown provisions are too large for direct attachment to the snap hook on the tiedown device, use the clevis assembly to make the attachment.

(k) Reposition the materials required during unloading, then tie them down as directed by the pilot in command.

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The winching cable must be used as a safety restraint when the container is manhandled from the pod. Also, care must be exercised when the container passes over the ramp hinge.

NOTE

See paragraph 4-1d for alternate materials and procedures when CH-54 is not in flight configuration.

d. Alternate Materials and Procedures for Transporting One or Two Nike-Hercules Warhead Sections in Containers, M409, by CH-54 Helicopter Universal Military Pod, With Pod in Other Than Flight Configuration.

(1) The pod may be loaded and unloaded when—

(a) The helicopter (CH-54A only) is in a kneeled position.

(b) The pod four-wheel system is fully retracted and pod is resting on the ground.

(2) Procedures for loading and unloading the pod when in one of the configurations described in (1) above are the same as prescribed in c and e above. However, with the pod floor at lower levels, the ramp

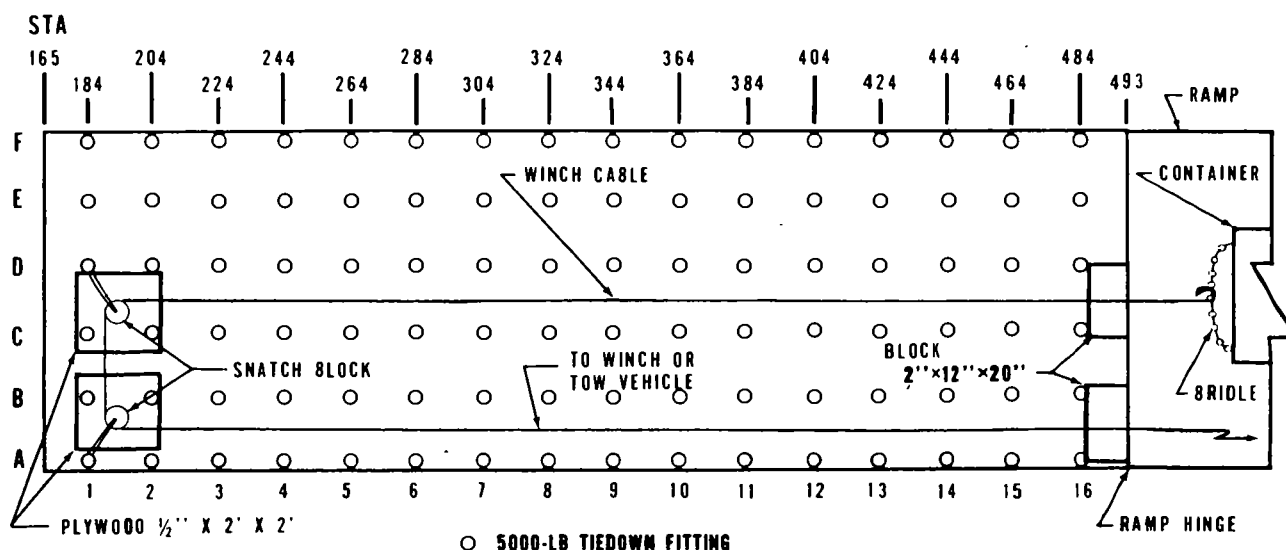


Figure 4-8. Winching diagram for loading Nike-Hercules warhead section shipping and storage container, M409, into CH-54 helicopter universal military pod.

angle is reduced and less blocking shoring is required.

e. Materials and Procedures for Transporting Two Nike-Hercules Warhead Sections in Containers, M409, by CH-54 Helicopter Universal Military Pod in Flight Configuration.

WARNING

The universal military pod must be secured to the CH-54 helicopter to preclude jettisoning the pod either deliberately or inadvertently.

(1) Materials.

(a) Parking shoring: four pieces, 2- by 12-inch by 12-foot.

(b) Rolling shoring: two pieces, 2- by 12-inch by 12-foot.

(c) Bridge shoring: two sheets of plywood, 4- by 8-foot by $\frac{1}{2}$ -inch (shoring may be used between container skids and conveyors but is not required).

(d) Blocking shoring: approximately 36 pieces, 2- by 12- by 20 inch.

(e) Wheeled or roller conveyor: four sections, 8-foot (NSN 3910-00-764-0229), or equivalent.

(f) Restraint straps: four CGU-1/B tiedown devices, or equivalent.

(g) Chain (type used with C-2 or MB-1 tiedown device): four, 10,000-pound capacity, or equivalent.

(h) Clevis assembly, suspension, air delivery (NSN 1679-00-360-0304), or equivalent as required.

(i) Truck, forklift or crane: one load-tested, 6,000-pound minimum capacity.

(j) Truck: wrecker, medium, 5-ton, 6x6, with winch or suitable substitute.

(k) Snatch block, tackle, single-sheave: two (NSN 3940-00-630-9932), organic to the M816 wrecker, or equivalent block may be used.

(l) Plywood: two pieces, $\frac{1}{2}$ -inch by 2- by 2-foot, or equivalent.

(2) Loading.

(a) Position rolling shoring and conveyors, rollers down, as shown in figure 4-6, and extend parking shoring into the pod. Place two 20-inch blocks between conveyors to maintain alignment while the item is being towed into the pod. (Use parking shoring as rolling shoring.)

(b) Position container (cover end towards pod) on the conveyors (fig 4-6), by using a forklift or crane.

(c) Connect two CGU-1/B tiedown devices, then place them around the forward (cover) end of container and aft end of conveyors (fig 4-3) to prevent container from being pulled off the conveyors during loading.

(d) Form a bridle by passing chain through towing eyes on front end of the container as shown in figure 4-7.

(e) Attach snatch blocks by using tiedown chains, to pod tiedown fittings A1 and D1. Adjust chains to insure that container is winched down the centerline of the pod. Place plywood pieces beneath the blocks to protect floor. Winching diagram is shown in figure 4-8.

(f) Pass towing cable through opened snatch blocks, attach cable hook to bridle on container, and safety tie the hook to prevent accidental release. Safety tying the hook is not required with the hook is equipped with a serviceable safety latch. Close and lock blocks. Place wooden blocks beneath towing cable (fig 4-7) to protect pod floor.

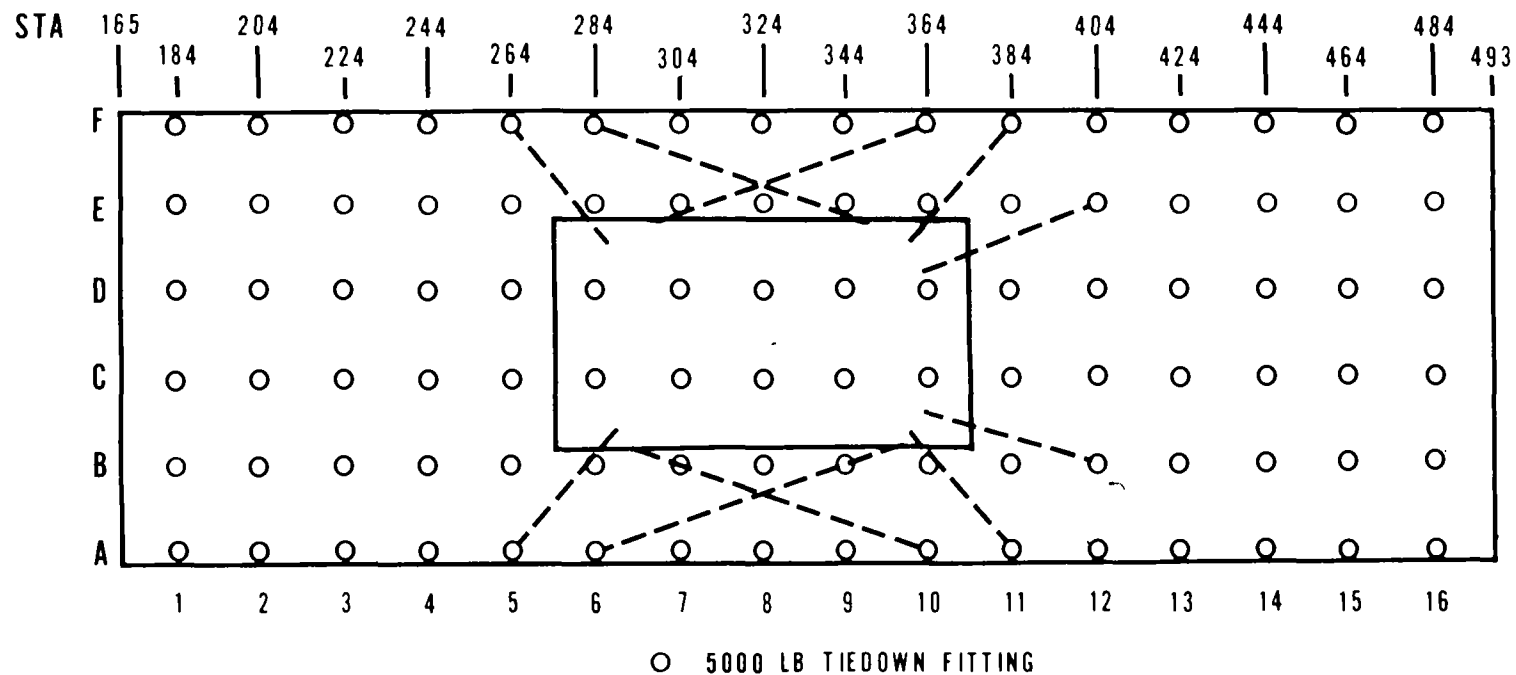
(g) Position guides to adjust shoring, then observe clearances and winching cable, and signal truckwinch operator as necessary.

(h) Winch first container onto the pod ramp by either taking up on the truckwinch or backing

Table 4-3. Tiedown Data for One Nike-Hercules Warhead Section Shipping and Storage Container, M409, in CH-54 Helicopter Universal Military Pod

Tiedown fitting		Tiedown devices*		Attach to item
Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A5	5	CGU-1/B	5	Left front stacking bracket
F5	5	CGU-1/B	5	Right front stacking bracket
A6	5	CGU-1/B	5	Left rear inner tiedown point
F6	5	CGU-1/B	5	Right rear inner tiedown point
A10	5	CGU-1/B	5	Left front inner tiedown point
F10	5	CGU-1/B	5	Right front inner tiedown point
A11	5	CGU-1/B	5	Left rear stacking bracket
F11	5	CGU-1/B	5	Right rear stacking bracket
B12	5	CGU-1/B	5	Left rear tiedown point
E12	5	CGU-1/B	5	Right rear tiedown point

*The strap, web, tiedown (NCS 5340-01-08904997), with a rated strength of 5,000 pounds, may be used in place of the CGU-1/B tiedown device (NSN1670-00-725-1437).



DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
		REFERENCE POINT	STATION		
CONTAINER, M409, WITH	COVER END	FORWARD EDGE OF	274	325	3068
NIKE-HERCULES WARHEAD SECTION	AFT	CONTAINER			

Figure 4-9. Tiedown diagram for one Nike-Hercules warhead section shipping and storage container, M409, in CH-54, helicopter universal military pod.

the truck with winch locked. Reposition ground-level shoring into the pod, then winch container to its tiedown location. Apply fore-and-aft restraints.

(i) Form a bridle on second container, then chain snatch blocks to pod tiedown fittings A9 and D9. Adjust chains to insure that container is winched down the centerline of the pod. Place plywood pieces beneath blocks to protect floor. Reposition parking shoring to ground-level for use as rolling shoring.

(j) Load second container as prescribed for first container. Stop winching when container is on ramp, then reposition ground-level rolling shoring for use as parking shoring.

(k) Winch container to its tiedown location and apply fore-and-aft restraints. Remove towing cable and snatch blocks. (The bridle may remain attached to the container for use in unloading.)

(l) Tiedown the containers (on the conveyors and shoring) in accordance with figure 4-10 and table 4-4. If container tiedown provisions are too large for direct attachment to the snap hook on tiedown device, use clevis assembly to make the attachment.

(m) Reposition materials required during unloading, then tie them down as directed by the pilot in command.

(3) *Unloading.* Unloading procedures are essentially the reverse of loading procedures. The towing cable must be used as a safety restraint when containers are manhandled from the pod. Also, care must be exercised when container passes over ramp hinge.

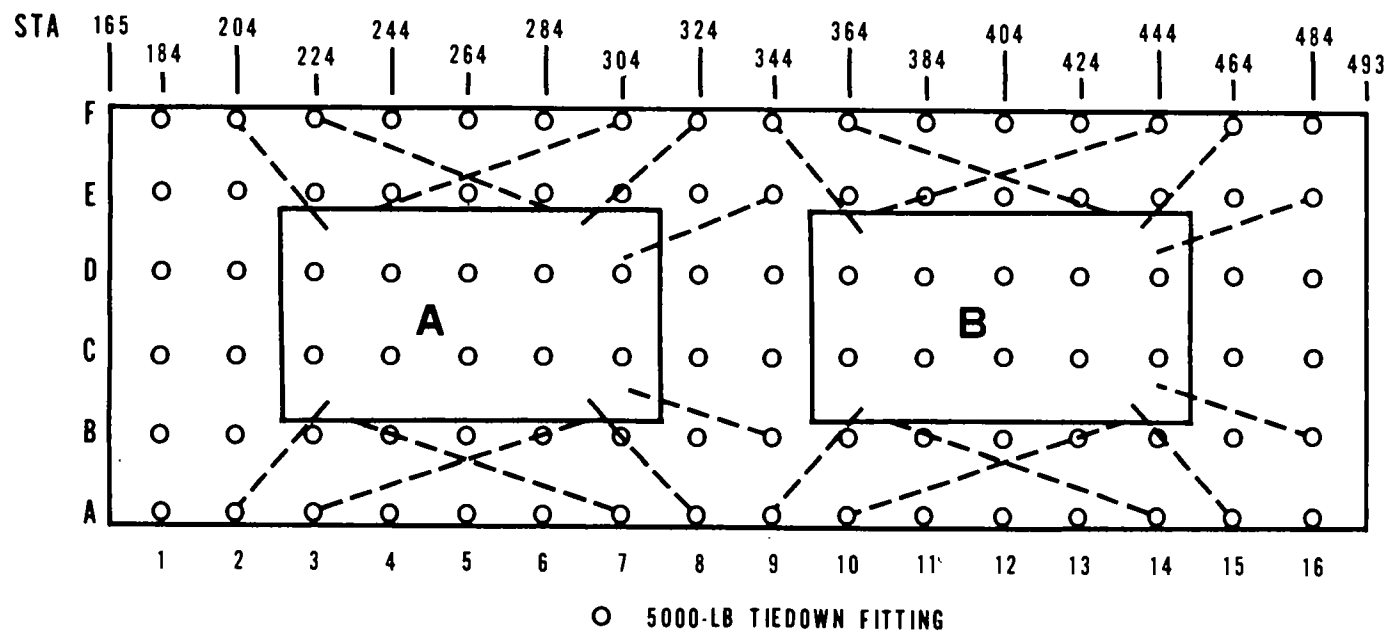
NOTE

See paragraph 4-1d for alternate materials and procedures when CH-54 is not in flight configuration.

Table 4-4. Tiedown Data for Two Nike-Hercules Warhead Section Shipping and Storage Containers, M409, in CH-54 Helicopter Universal Military Pod

Item	Tiedown fitting		Tiedown device*		Attach to item
	Designation	Capacity in 1,000 lb	Type	Capacity in 1,000 lb	
A	A2	5	CGU-1/B	5	Left front stacking bracket
	F2	5	CGU-1/B	5	Right front stacking bracket
	A3	5	CGU-1/B	5	Left rear inner tiedown point
	F3	5	CGU-1/B	5	Right rear inner tiedown point
	A7	5	CGU-1/B	5	Left front inner tiedown point
	F7	5	CGU-1/B	5	Right front inner tiedown point
	A8	5	CGU-1/B	5	Left rear stacking bracket
	F8	5	CGU-1/B	5	Right rear stacking bracket
	B9	5	CGU-1/B	5	Left rear tiedown point
B	E9	5	CGU-1/B	5	Right rear tiedown point
	A9	5	CGU-1/B	5	Left front stacking bracket
	F9	5	CGU-1/B	5	Right front stacking bracket
	A10	5	CGU-1/B	5	Left rear inner tiedown point
	F10	5	CGU-1/B	5	Right rear inner tiedown point
	A14	5	CGU-1/B	5	Left front inner tiedown point
	F14	5	CGU-1/B	5	Right front inner tiedown point
	A15	5	CGU-1/B	5	Left rear stacking bracket
	F15	5	CGU-1/B	5	Right rear stacking bracket
	B16	5	CGU-1/B	5	Left rear tiedown point
	E16	5	CGU-1/B	5	Right rear tiedown point

*The strap, web, tiedown (NSN 5340-01-089-4997), with a rated strength of 5,000 pounds, may be used in place of the CGU-1/B tiedown device (NSN 1670-00-725-1437).



ITEM	DESCRIPTION OF ITEM	ITEM FACING	LOCATION OF REFERENCE POINT		LOCATION OF CG (STA)	APPROX WT (LB)
			REFERENCE POINT	STATION		
A	CONTAINER, M409, WITH NIKE-HERCULES	COVER END	FORWARD EDGE	214	265	3068
	WARHEAD SECTION	AFT	OF CONTAINER			
B	CONTAINER, M409, WITH NIKE-HERCULES	COVER END	FORWARD EDGE	354	405	3068
	WARHEAD SECTION	AFT	OF CONTAINER			

Figure 4-10. Tiedown diagram for two Nike-Hercules warhead section shipping and storage containers, M409, in CH-54 helicopter universal military pod.

4-2. External Transport (Emergency Procedures)

These procedures apply when one or two Nike-Hercules warhead shipping and storage containers, M409, with or without warhead sections, are rigged with one of the following sling systems for transport as an external load. Optimum speed with one container is from 40 to 50 knots; with two containers, up to 115 knots.

WARNING

The contents of paragraph 4-2 are for information and training purposes only and are not to be construed as authority for external transport by helicopter of the container, M409, with Nike-Hercules warhead section. Only dummy loads may be used for practice and/or training exercises. *Nuclear weapons will not be moved by external helicopter transport except in emergency conditions (such as emergency evacuation ordered to maintain US custody or to prevent loss because of fire or flood), and only when the situation does not allow time to prepare and move the nuclear weapons by internal transport (para 4-1).*

WARNING

It must always be assumed that a charge of static electricity is present on the helicopter. Therefore, some type of discharge apparatus or static probe (FM 55-450-1) to ground the helicopter hook and discharge electricity is necessary to prevent shock when the hook is touched. After discharge of electricity, the hook must be grasped quickly and firmly and held, if possible, until the hookup is completed. If contact with the hook is lost after initial grounding, the hook must be grounded again before it is touched. The load must be used as a ground contact. After air delivery and before handling, the load must be grounded again to discharge any accumulated/retained static electricity.

CAUTION

When the load is transported externally by CH-54 helicopter, use a large metal clevis to attach the load to the cargo hook, as a nylon sling ring tends to adhere to the cargo hook beam and prevents release of the load.

NOTE

The container, M409, is equipped with two lifting lug assemblies, which are located along the top centerline. The lug assemblies are approximately 1 inch thick, with $\frac{3}{4}$ -inch diameter eyes.

a. Materials and Procedures for Rigging One Nike-Hercules Warhead Section Container, M409, With the Use of Sling, Helicopter, Cargo-Carrying, External.

(1) Materials.

(a) Sling set: one, helicopter, cargo-carrying, external, four-leg sling (NSN 1670-01-027-2902) (has rated capacity of 10,000 pounds).

(b) Clevis assembly, medium: two, air delivery (NSN 1670-00-678-8562), or equivalent.

(2) Preparation and rigging.

NOTE

Each sling leg is constructed of a 12-foot nylon-coated, braided rope and an 8-foot chain. The rope and chain are connected by a grab hook that is equipped with a spring-loaded keeper. The chain consists of approximately 111 links; the link at the free end is number 1. Sling legs are numbered 1 through 4.

(a) Attach a medium clevis assembly to each lift lug on the container.

(b) Pass the chain legs of slings 1 and 4 through clevis assembly on the forward end of the container, then insert link number 3 of each chain into the grab link to form a hitch. Repeat procedure with slings 2 and 3 through the clevis assembly on the aft end of container. (The spring-loaded keeper prevents the chain from sliding out of the grab hook until the keeper is depressed and the chain is removed.)

(c) Attach sling clevis (apex) to the helicopter cargo hook.

(d) Two persons can rig the container in approximately 5 minutes.

(3) *Derigging.* Depress spring-loaded keeper on grab hook and remove the chain leg from the hook and from each clevis assembly. Remove clevis assemblies from lift lugs on the container. (Two persons can derig the container in approximately 3 minutes.)

NOTE

Materials, preparation and rigging, and derigging prescribed above are applicable

when the helicopter, cargo-carrying, external, four-leg sling (NSN 1670-01-027-2900) (has rated capacity of 25,000 pounds) is used in place of the 10,000-pound-capacity sling. Length of the 10,000- and 25,000-pound-capacity slings is the same; however, the 25,000-pound-capacity chain consists of approximately 88 links.

b. Materials and Procedures for Rigging One Nike-Hercules Warhead Section Container, M409, With the Use of Sling, Cargo, Nylon and Chain, Multiple Leg.

(1) *Materials.*

(a) Sling set: one, 23-foot nylon and chain, four-leg sling (NSN 1670-00-902-3080) (has rated capacity of 15,000 pounds).

(b) Clevis assembly, medium: two, air delivery (NSN 1670-00-678-8562), or equivalent.

(c) Clevis assembly, large: one, air delivery, type I (NSN 1670-00-090-5354), or equivalent. (For use with CH-54 helicopter.)

(2) *Preparation and rigging.*

NOTE

Each nylon and chain sling leg is constructed of a 15-foot nylon web sling with a metal grab link on its lower end. The grab link is approximately 10 inches long and is equipped with a spring-loaded keeper. Attached to the lower or small end of the grab link is a hammer lock, which connects the chain leg to the grab link. The chain leg is approximately 6 feet long and has 64 links. The link at the free end is link number 1. Sling legs are numbered 1 through 4.

(a) Observe procedures in a(2)(a) and a(2)(b) above.

(b) The 12-inch ring of the sling forms the apex for attachment to the helicopter cargo hook. See Caution above regarding transport by CH-54 helicopter.

(c) Two persons can rig the container in approximately 5 minutes.

(3) *Derigging.* Depress spring-loaded keeper on grab link and remove chain leg from link and from clevis assembly. Remove clevis assemblies from lift lugs on the container. (Two persons can derig the container in approximately 3 minutes.)

c. Materials and Procedures for Rigging One Nike-Hercules Warhead Section Container, M409, With the Use of Slings, Cargo, Air Delivery.

(1) *Materials.*

(a) Sling legs: two, 16-foot, three-loop cargo slings (NSN 1670-00-823-5042) (each sling has rated capacity of 10,000 pounds).

(b) Tape: 2-inch, pressure-sensitive (NSN 8135-00-266-5016), or equivalent, as required.

(c) Clevis assembly, medium: two, air delivery (NSN 1670-00-678-8562), or equivalent.

(d) Sling ring: one, 3-foot, three-loop cargo sling (NSN 1670-00-753-3788) (has rated capacity of 10,000 pounds), with link assembly, type IV (NSN 1670-00-783-5988).

(e) Clevis assembly, large: one, air delivery, type I (NSN 1670-00-090-5354), or equivalent. (For use with CH-54 helicopter.)

(2) *Preparation and rigging.*

(a) Attach to a sling leg to each lift lug on the container, by using a medium clevis assembly.

(b) Twist each sling leg one turn for each 3 feet of sling.

(c) Combine the free ends of the sling legs to form a single loop, and attach this loop to the 3-foot sling. Connect free ends of the 3-foot sling with the link assembly. The 3-foot sling (ring) forms the apex for attachment to the helicopter cargo hook. See Caution above regarding transport by CH-54 helicopter.

(d) Cluster and tape sling legs (breakaway technique) to prevent fouling during lift-off.

(e) Two persons can rig the container in approximately 5 minutes.

(3) *Derigging.* Two persons can derig the container in approximately 3 minutes.

d. Materials and Procedures for Rigging Two Nike-Hercules Warhead Section Containers, M409, With the Use of Slings, Helicopter, Cargo-Carrying, External.

(1) *Materials.*

(a) Sling set: one, helicopter, cargo-carrying, external, four-leg sling (NSN 1670-00-027-2902) (has rated capacity of 10,000 pounds). For sling description, see Note in a(2) above.

(b) Clevis assembly, medium: four, air delivery (NSN 1670-00-678-8562), or equivalent.

(c) Chain (type used with C-2 or MB-1 tie-down device): two, 10,000-pound capacity each, or equivalent.

(2) *Preparation and rigging.*

(a) Place containers so that sides touch and matching ends face opposite directions.

(b) Lash containers together at both ends, by using chains between the tiedown bars (bottom of containers), as shown in figure 4-11.

(c) Attach a medium clevis assembly to the lift lugs on each container.

(d) Attach the end sling legs (as positioned on sling clevis) to the first container, then attach the center sling legs to the second container. Pass one chain leg through each clevis assembly on the first

container, then insert link number 3 of chain into the grab hook to form a hitch. Repeat procedure for the second container, by using the other two chain legs. (The spring-loaded keeper prevents the chain from sliding out of the grab hook until the keeper is depressed and the chain is removed.)

(e) Attach sling clevis (apex) to the helicopter cargo hook.

(f) Two persons can rig the container in approximately 10 minutes.

(3) *Derigging.* Depress spring-loaded keeper on grab hook and remove chain leg from hook and from clevis assembly. Remove clevis assemblies from lift-lugs on containers. (Two persons can derig the containers in approximately 5 minutes.)

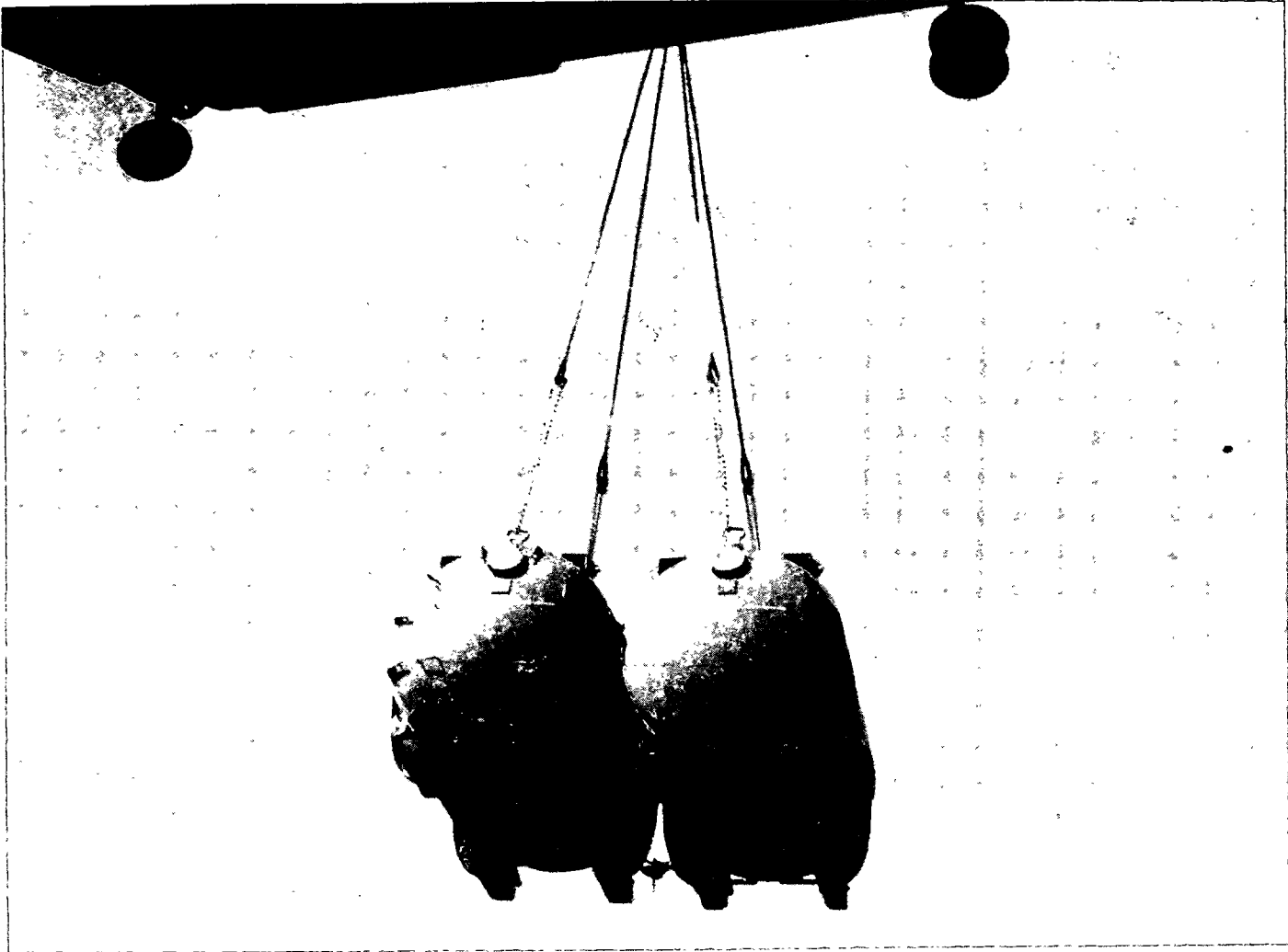


Figure 4-11. External transport of two Nike-Hercules warhead section containers, M409. Containers are lashed together at both ends by chains between the tiedown bars.

NOTE

Materials, preparation and rigging, and derigging prescribed above are applicable when the helicopter, cargo carrying external, four-leg sling (NSN 1670-01-027-2900) (has rated capacity of 25,000 pounds) is used in place of the 10,000-pound-capacity sling. Length of the 10,000- and 25,000-pound-capacity slings is the same; however, the 25,000-pound-capacity chain consists of approximately 88 links.

e. Materials and Procedures for Rigging Two Nike-Hercules Warhead Section Containers, M409, With the Use of Sling, Cargo, Nylon and Chain, Multiple Leg.

(1) *Materials.*

(a) Sling set: one, 23-foot, nylon and chain, four-leg sling (NSN 1670-00-902-3030) (has rated capacity of 15,000 pounds). For sling description, see Note in b(2) above.

(b) Clevis assembly, medium: four, air delivery (NSN 1670-00-678-8562), or equivalent.

(c) Clevis assembly, large: one, air delivery, type I (NSN 1670-00-090-5354), or equivalent. (For use with CH-54 helicopter.)

(d) Chain (type used with C-2 or MB-1 tie-down device): two, 10,000-pound-capacity, or equivalent.

(2) *Preparation and rigging.*

(a) Observe procedures in: d(2)(a) through d(2)(c) above.

(b) Attach the end sling legs (as positioned on 12-inch sling ring) to the first container, then attach the center sling legs to the second container. Pass one chain leg through each clevis assembly on the first container, then insert link number 3 of chain into the grab link to form a hitch. Repeat procedure for the second container, by using the other two chain legs. (The spring-loaded keeper prevents the chain from sliding out of the grab link until the keeper is depressed and the chain is removed.)

(c) The 12-inch ring of the sling forms the apex for attachment to the helicopter cargo hook. See Caution above regarding transport by CH-54 helicopter.

(d) Two persons can rig the containers in approximately 10 minutes.

(3) *Derigging.* Depress spring-loaded keeper on the grab link and remove the chain leg from the

link and from each clevis assembly. Remove clevis assemblies from lift lugs on the containers. (Two persons can derig the containers in approximately 5 minutes.)

f. Materials and Procedures for Rigging Two Nike-Hercules Warhead Section Containers, M409, With the Use of Air Delivery Cargo Slings.

(1) *Materials.*

(a) Sling legs: four, 16-foot, three-loop cargo slings (NSN 1670-00-823-5042) (each has rated capacity of 10,000 pounds).

(b) Tape: 2-inch, pressure-sensitive (NSN 8135-00-266-5016), or equivalent, as required.

(c) Clevis assembly, medium: four, air delivery (NSN 1670-00-678-8562), or equivalent.

(d) Sling ring: one, 3-foot, three-loop cargo sling (NSN 1670-00-753-3788) (has rated capacity of 10,000 pounds), with link assembly, type IV (NSN 1670-00-783-5988).

(e) Clevis assembly, large: one, air delivery, type I (NSN 1670-00-090-5354), or equivalent. (For use with CH-54 helicopter.)

(f) Chain (type used with C-2 or MB-1 tie-down device): two, 10,000-pound capacity, or equivalent.

(2) *Preparation and rigging.*

(a) Place containers so that sides touch and matching ends face opposite directions.

(b) Lash containers together at both ends, by using chains between tiedown bars (bottom of containers) (fig 4-11).

(c) Attach a sling leg to the lift lugs on each container, by using medium clevis assemblies.

(d) Twist each sling leg one turn for each 3 feet of sling.

(e) Combine the free ends of the sling legs to form a single loop (legs from the second container are placed between legs from the first container), and attach this loop to the 3-foot sling. Connect free ends of the 3-foot sling with the link assembly.

(f) The 3-foot sling (ring) forms the apex for attachment to the helicopter cargo hook. See Caution above regarding transport by CH-54 helicopter.

(g) Cluster and tape sling legs (breakaway technique) to prevent fouling during lift-off.

(h) Two persons can rig the containers in approximately 10 minutes.

(3) *Derigging.* Two persons can derig the containers in approximately 5 minutes.



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APPENDIX

REFERENCES

A-1. Publication Indexes

Department of the Army pamphlets of the 310-series should be consulted frequently for the latest changes or revisions of references given in this appendix and for new publications relating to material covered in this manual.

A-2. Army Regulations (AR)

10-16	US Army Nuclear and Chemical Agency.
40-14	Control and Recording Procedures for Exposure, to Ionizing Radiation and Radioactive Materials.
50-5	Nuclear and Chemical Weapons and Materiel: Nuclear Surety.
(C) 50-5-1	Nuclear and Chemical Weapons and Materiel: Nuclear, Surety (U).
(C) 50-105	Safety Rules for the Operation of the Nike-Hercules Nuclear Weapon System (U).
55-203	Movement of Nuclear Weapons, Nuclear Components, and Related Classified Nonnuclear Materiel.
95-1	Army Aviation: General Provisions and Flight Regulations.
95-27	Operational Procedures for Aircraft Carrying Hazardous Materials.
360-5	Army Information: Public Information Policies.
385-40	Accident Reporting and Records.
700-65	Nuclear Weapons and Nuclear Weapons Materiel.
740-1	Storage and Supply Activity Operations.

A-3. Field Manuals (FM)

55-9	Unit Air Movement Plan.
55-413	Aerial Recovery of US Army and Air Force Aircraft.
55-450-1	Army Helicopter External Load Operations.
100-50	Operations for Nuclear-Capable Units.
101-20	United States Army Aviation Planning Manual.

A-4. Technical Bulletins (TB)

(SRD) 9-1100-811-40	Security Classification of Nuclear Weapons Information (U).
385-2	Nuclear Weapons Firefighting Procedures.

A-5. Technical Manuals (TM)

5-315	Firefighting and Rescue Procedures in Theaters of Operations.
(C) 9-1100-250-12	Operator and Organizational Maintenance: M22 and M97 Atomic Warhead Sections (Nike-Hercules Air Defense Guided Missile System) (U).
9-1300-206	Ammunition and Explosives Standards.
38-250	Packaging and Materials Handling: Preparation of Hazardous Materials for Military Air Shipment.
39-0-1A	Numerical Index to Joint Nuclear Weapons Publications (Including Related Publications) (Army Supplement) (U).
(SRD) 39-20-7	Nuclear Safety Criteria (U).
(CRD) 39-20-11	General Firefighting Guidance (U).

39-45-51	Transportation of Nuclear Weapons Materiel.
(SRD) 39-45-51A	Transportation of Nuclear Weapons Materiel (Supplement): Shipping and Identification Data for Stockpile Major Assemblies (U).
39-45-51C	Transportation of Nuclear Weapons Materiel (Supplement): Military Criteria for Shipment.
(CRD) 39-50-8	Emergency Destruction of Nuclear Weapons (U).
55-450-18	Air Transport of Supplies and Equipment: Internal and External Loads, CH-47 Helicopter.
55-1400-250-14	Transportability Guidance: Nike-Hercules and Improved Nike-Hercules Air Defense Guided Missile Systems.
55-1520-209-10	Operator's Manual: Army Model, CH-47A Helicopter.
55-1520-210-10	Operator's Manual: UH-1D/H and ER-1H Helicopters.
55-1520-217-10-1	Operator's Manual: Army Model, CH-54A Helicopters.
55-1520-217-10-2	Operator's Manual: Army Model, H-54B Helicopters.
55-1520-227-10-1	Operator's Manual: Army Model, CH-47B Helicopter.
55-1520-227-10-2	Operator's Manual: Army Model, CH-47C Helicopter.
55-1520-237-10	Operator's Manual: UH-60A Helicopter.
55-1520-240-10	Operator's Manual for CH-47D Helicopter.

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Active Army, ARNG, USAR: To be distributed in accordance with DA Form 12-31, Operator's Maintenance requirements for CH-47B/C and D; CH-54A; CH-54B; UH-1D/H and EH-1H; UH-60A Rotor Wing Aircraft and DA Form 12-34B requirements for TM 55 Series: Transportability Guidance, Air Transport Procedures: Nuclear Warheads and Projectiles and DA Form 12-35, Operator's Maintenance requirements for Section III Weapon System, Nike-Hercules.

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